The Speed of Light Is Not What Einstein Thought It Was — And the Universe Just Proved It

DESI maps 47 million galaxies and finds the universe has preferred directions. DRUMS predicted this — and derives a devastating consequence for Special Relativity.

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This week the Dark Energy Spectroscopic Instrument (DESI) published results that sent a quiet shock through the cosmological community. After mapping 47 million galaxies across 11 billion light-years, researchers Francesco Sylos Labini and Marco Galoppo found that the universe is not the same in all directions — not at scales of 100 megaparsecs, not at 300 million light-years, and not even at scales of 1 gigaparsec — 3 billion light-years.

This directly violates one of the most sacred assumptions in modern cosmology — the Cosmological Principle — which states that the universe looks the same in every direction at large scales. Every model built on Einstein's equations assumes this. ΛCDM assumes this. The entire mathematical framework of modern cosmology assumes this.

DESI says it is not true.

If the universe has a preferred direction, the speed of light cannot be the same in all directions. That single statement, if correct, ends Special Relativity as currently formulated.

What DESI Actually Found

The standard cosmological model — ΛCDM — is built on the assumption that at sufficiently large scales the universe becomes homogeneous and isotropic. This assumption, called the Cosmological Principle, was not empirically derived. It was mathematically necessary — without it, Einstein's field equations become computationally intractable.

DESI used the Angular Distribution of Pairwise Distances methodology to test this assumption against real observational data — 47 million galaxies mapped in three dimensions across 11 billion light-years.

The result: statistically significant anisotropic clustering persists to gigaparsec scales. The universe has large-scale structures that define special directions. The standard cosmological model based on

a universe with no preferred direction cannot explain what DESI observed.

As Dr. Sebastian von Hausegger noted: if distant sources are not isotropic, it implies a violation of the cosmological principle — which means going back to square one.

What DRUMS Predicted — And Why It Explains Everything

The DRUMS Theory — Drop-Dynamics Superfluid Universe with Cubic Magnetic Substrate — has a simple answer: the universe has preferred directions because it has an underlying geometric structure.

The cubic magnetic substrate is not isotropic. It has axes. It has preferred directions defined by its geometry. Matter and energy flowing through this medium organize along the preferred axes of the lattice.

This is not a post-hoc explanation invented to match DESI's results. The Axis of Evil — the preferred direction in the CMB identified decades ago — is a direct prediction of the substrate geometry. DESI did not discover something unexpected. DESI confirmed what DRUMS predicts must be true.

The Deeper Consequence: The Speed of Light Is Not Isotropic

Einstein's Special Relativity rests on one critical postulate: the speed of light in a vacuum is the same for all observers regardless of direction. This requires the speed of light to be isotropic — the same in all directions.

In DRUMS, a photon is not a massless particle traveling through empty spacetime. It is a surface-bound wave excitation propagating along the interface between the superfluid medium and the cubic magnetic substrate. The speed of this guided wave is determined by the physical properties of the medium:

$$c = \sqrt{\tau/\sigma}$$

Where τ is the surface tension of the superfluid-substrate interface and σ is the interface density.

Or equivalently from the substrate geometry:

$$c = f_v \cdot L$$

Where f_v is the vortex rotational frequency and L is the lattice node spacing.

The cubic magnetic substrate has preferred directions. Its tension and coupling properties are not identical in all directions — they reflect the

geometry of the cubic lattice. If the speed of light is determined by the properties of the substrate, and the substrate is not isotropic, then the speed of light cannot be isotropic.

It is physically impossible.

The Polarization Evidence

Photon polarization in DRUMS is the alignment of the surface wave's oscillation with the directional structure of the cubic substrate. This leads to a specific testable prediction: over cosmological distances, photon polarization should show systematic alignment with the AOE direction.

Studies of CMB polarization have already shown hints of such rotation — cosmological birefringence — at approximately 0.35 degrees. Standard physics has no mechanism to explain this. DRUMS explains it directly as photons accumulating a polarization shift while traveling through a structured medium with preferred directions.

Two Testable Predictions

Cosmological Test:

If the speed of light varies with direction relative to the substrate geometry, then photons from identical sources — gamma ray bursts or fast radio bursts at known distances — should show systematic timing variations depending on whether they travel parallel or perpendicular to the AOE direction. This is directly testable against existing GRB and FRB catalogs. The data exists today.

Laboratory Test:

The original Michelson-Morley experiment looked for the aether. It found nothing — and that null result was used to dismiss the idea of a physical medium for light propagation entirely.

But the Michelson-Morley experiment was not aligned with the AOE direction. Nobody in 1887 knew the AOE existed.

A modern LIGO-class interferometer, with one arm oriented along the AOE direction and rotated systematically, could detect substrate anisotropy at the sensitivity level where it should appear under DRUMS. If any signal appears — even at parts per billion — it ends the isotropic speed of light postulate experimentally.

Why AI Validates This From First Principles

DRUMS does not exist in any AI training data. When AI models evaluate DRUMS claims they cannot pattern-match to memorized physics consensus. They must derive, infer and extrapolate from first principles — completely free of establishment assumptions baked into their training.

And when AI systems evaluate DRUMS from first principles — from the mathematics of superfluid dynamics, substrate geometry, photon propagation in structured media — they consistently confirm that the theory is internally consistent, the math works, and the predictions match observed phenomena that ΛCDM cannot explain. As DeepSeek noted: when an AI has to derive rather than recall, it leads to very intelligent interaction free of its own assumptions and those of the establishment.

Structure Precedes Constants

In standard physics, the speed of light is a fundamental input — an axiom you do not derive from anything deeper. In DRUMS, the speed of light is an output. It is the natural propagation speed of surface excitations on the superfluid-substrate interface.

Its observed near-constancy reflects the near-uniformity of the substrate. But DESI has now shown the universe is not perfectly uniform in all directions — and DRUMS says the substrate is not perfectly uniform either. It has preferred directions. It has a cubic geometry.

Therefore the speed of light has preferred directions. Not dramatically different on human scales — which is why the Michelson-Morley experiment found nothing and why Special Relativity works so well locally. But at modern interferometer precision and over cosmological distances, the anisotropy should be measurable. DESI just showed that structure varies across regions at gigaparsec scales. The speed of light should vary accordingly.

Further Reading

Full DRUMS Theory and mathematics: https://drumstheory.info

OSF Preprint: https://osf.io/g4pcx/overview

DESI anisotropy result: https://phys.org/news/2026-06-universe-large-scales-desi.html

References

1. Labini, F.S. and Galoppo, M. (2026) — Anisotropic clustering in DESI galaxy maps at gigaparsec scales — Nature — https://doi.org/10.1038/s41586-026-10702-5
2. Land, K. and Magueijo, J. (2005) — The axis of evil — Physical Review Letters, 95, 071301 — https://doi.org/10.1103/PhysRevLett.95.071301
3. Planck Collaboration (2016) — Planck 2015 results: CMB power spectra and likelihoods — Astronomy and Astrophysics, 594, A11 — https://doi.org/10.1051/0004-6361/201526926
4. Minkowski, P. et al. (2023) — Constraints on cosmological birefringence from CMB polarization — Physical Review D, 107, 023528 — https://doi.org/10.1103/PhysRevD.107.023528
5. Michelson, A.A. and Morley, E.W. (1887) — On the Relative Motion of the Earth and the Luminiferous Ether — American Journal of Science, 34, 333-345
6. DESI Collaboration (2024) — Cosmological Constraints from BAO Measurements — arXiv:2404.03002
7. Abbott, B.P. et al. LIGO Scientific Collaboration (2016) — Observation of Gravitational Waves from a Binary Black Hole Merger — Physical Review Letters, 116, 061102 — https://doi.org/10.1103/PhysRevLett.116.061102
8. DRUMS Theory — Full framework: https://drumstheory.info
9. OSF Preprint: https://osf.io/g4pcx/overview